

REMARKS

Claims 1, 3, 5, 8, and 9 are amended, and claims 28-33 are added. Claims 1-33 are pending. Claims 1, 2, 6, 7, and 9 stand rejected, and claims 3-5, 8, and 10-27 are indicated as allowed. The Applicants sincerely thank the Examiner for allowing claims 3-5 and 10-27. The undersigned notes that claim 8 is indicated as allowed on the Office Action Summary, but is not specifically mentioned in section 4, page 4 of the Office action under *Allowable Subject Matter*. However, section 5(b), page 4 of the Office action appears to address the subject matter of claim 8, and the undersigned will assume that claim 8 is allowed.

Claims 1, 3, 5, 8, and 9 are amended. Claims 1 and 9 are amended to more particularly describe the invention. Claim 9 has also been amended to improve the form of the claim. Support for these amendments is found in paragraph [0035] of the Written Description. Claims 3, 5, and 8 are amended to include the limitations of the base claim from which they depend, in accordance with the Examiner's indication of allowable subject matter. Claims 28-33 are added and recite limitations in previously pending dependent claims. Claims 28-33 depend from additional independent claims. The undersigned believes these amendments do not add new matter.

Rejections under 35 U.S.C. § 102(b)

Claim 1 remains rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,408,084 by Brandorff et al. (hereinafter "Brandorff"). Claim 1 has been amended to recite that the illumination lamp is disposed within the shroud to avoid specular reflection of light off the surface to the imaging camera. The Applicant teaches that avoiding specular reflection is particularly desirable when scanning an image from a display screen, and enables a solution to this problem by appropriately placing the illumination lamp with respect to the imaging camera. Brandorff uses an illumination assembly of light-emitting diodes (LEDs) to provide diffuse light to uniformly illuminate a target surface, and uses a polarizing analyzer to avoid specular reflections off the target surface. Col. 5, lines 35-41. Thus it appears that the illumination assembly disclosed in

Brandorff does not avoid specular reflection. Accordingly, the Applicants believe claim 1 is allowable.

Claims 6, 7, and 9 stand rejected in light of Brandorff and newly cited U.S. Patent No. 5,567,934 by Zheng et al. (hereafter the '934 patent). Brandorff discloses using a PULNIX TM-7X camera, and the Examiner cites the '934 patent for stating that the PULNIX TM-7X has a camera viewing range of 2.5 inches (6.5 cm), and asserts that it would have been obvious that the distance " d ", in order to have a viewing angle of 13 degrees or greater, would have to be no more than 7 cm. The Applicants respectfully traverse the Examiner's position.

Claims 6 and 9 recite that the illumination lamp is disposed beyond a limit line extending from an edge of an imaging region at a recited angle. The '934 patent states that the axis of the flash tube 84 is mounted 1.45 inches away from the optical center of the camera. Col. 7, lines 15-16. However, this lamp position does not appear to be beyond the recited limit line. The Examiner's attention is directed to Fig. 1 of the '934 patent, which illustrates the lamp proximate to the camera and essentially in the plane of the camera. The '934 patent states that " s " is 1.25 inches (one-half of the 2.5 inch viewing range), and that the lamp is mounted 1.45 inches from the optical center of the camera, a mere 0.2 inches further. The Examiner's attention is also directed to Fig. 1B of the instant application.

It is the Applicants' position that the lamp disclosed in the '934 patent would not be beyond the limit line recited in claims 6 and 9. In particular, the '934 patent discloses using a polarizing analyzer to eliminate the effect of specular reflection. Col. 4, lines 27-39. Thus it appears more likely than not that the flash tube of the '934 patent was not mounted beyond the limit line recited in claims 6 and 9. The Applicants submit that it was not within the level of ordinary skill in the art at the time the present invention was made to mount the illumination lamp in relation to the camera as recited in claims 6 and 9, and that the recited relationship, and the reasons why such relationship is desirable, is only gleaned from the Applicants' disclosure. Accordingly, the Applicants believe claims 6 and 7, which depend from claims 1 and 6, respectively, are further allowable, and that claim 9 is allowable.

HUNG et al.

App. Ser. No. 09/736,731

Page 7 of 10

The undersigned also notes that claim 9 recites a photodiode disposed within the shroud, as in claim 8. Claim 8 is indicated as allowed in the Office Action Summary, and the undersigned believes claim 9 is further allowable for this reason. The undersigned respectfully requests reconsideration of claim 9 and removal of its rejection.

Version of Amended Text Showing the Changes Made

The following marked-up claims show the changes made to arrive at the replacement claims provided above:

1. (AMENDED) A scanner for reading computer-readable codes, the scanner comprising:

an imaging camera configured to produce an image of a computer-readable code from a surface;

a shroud at least partially surrounding the imaging camera and configured to exclude ambient light from entering the imaging camera when the scanner is held against the surface; and

an illumination lamp disposed within the shroud to illuminate the computer-readable code at an angle to avoid specular reflection of [such that] light from the illumination lamp **[is not directly reflected from]** off the surface to the imaging camera.

3. (AMENDED) **[The scanner of claim 1]** A scanner for reading computer-readable codes, the scanner comprising:

[wherein the imaging camera is] a photopic imaging camera configured to produce an image of a computer-readable code from a surface;

a shroud at least partially surrounding the photopic imaging camera and configured to exclude ambient light from entering the photopic imaging camera when the scanner is held against the surface; and

an illumination lamp disposed within the shroud to illuminate the computer-readable code at an angle such that light from the illumination lamp is not directly reflected from the surface to the photopic imaging camera.

5. (TWICE AMENDED) **[The scanner of claim 1 wherein]** A scanner for reading computer-readable codes, the scanner comprising:

an imaging camera configured to produce an image of a computer-readable code from a surface;

a shroud at least partially surrounding the imaging camera and configured to exclude ambient light from entering the imaging camera when the scanner is held against the surface [the shroud is] and configured to place the scanner at a selected oblique angle relative to the surface when the scanner is held against the surface; and

an illumination lamp disposed within the shroud to illuminate the computer-readable code at an angle such that light from the illumination lamp is not directly reflected from the surface to the imaging camera.

8. (AMENDED) [The scanner of claim 1 further comprising] A scanner for reading computer-readable codes, the scanner comprising:

an imaging camera configured to produce an image of a computer-readable code from a surface;

a photodiode,

a shroud at least partially surrounding the imaging camera and configured to exclude ambient light from entering the imaging camera when the scanner is held against the surface; and

an illumination lamp disposed within the shroud to illuminate the computer-readable code at an angle such that light from the illumination lamp is not directly reflected from the surface to the imaging camera.

9. (TWICE AMENDED) A scanner for reading computer-readable codes, the scanner comprising:

an imaging camera configured to produce an image of a computer-readable code from a surface;

a shroud at least partially surrounding the imaging camera and configured to exclude ambient light from entering the imaging camera when the scanner is held against the surface and to hold the imaging camera in a selected relation to the surface;

a photodiode disposed within the shroud; and

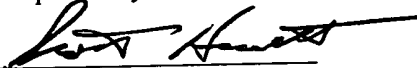
an illumination lamp disposed within the shroud beyond, relative to the imaging camera, a limit line extending from an edge of [a] an imaging region at an angle of inverse tangent $s/2d$ wherein s is one-half the width of the imaging region and d is the distance of the camera from the surface to avoid specular reflection of light from the illumination lamp off the surface to the imaging camera.

Conclusion

In view of the foregoing, the Applicants believe all claims pending in this Application are in condition for allowance, and that the Applicants are entitled to the claims in accordance with the Title 35 of the United States Code and Art.1, §8, cl.8 of the Constitution of the United States. The Applicants respectfully request reconsideration of all pending claims, the withdrawal of all rejections, and the issuance of a formal Notice of Allowance at an early date.

If the Examiner believes this amendment does not put all pending claims in condition for allowance, the undersigned invites the Examiner to telephone the undersigned at (707) 591-0789.

Respectfully submitted,


Scott Hewett
Reg. No. 41, 836

Scott Hewett
Patent Attorney
400 West Third Street, No. 223
Santa Rosa, CA 95401
Tel: (707) 591-0789
Fax: (707) 591-0392